



AGELESS INNOVATION'S

Joy for All[™]

COMPANION PETS



Impact and Benefit

Research Findings for Joy for All Companion Pets from Ageless Innovation

Written by



Introduction

Ageless Innovation's Joy for All Companion Pets were originally launched by Hasbro as a consumer product for older adults in 2015. They were designed with the goal of inspiring play, fun, and companionship among a population that is too often overlooked as needing something as simple and pure as "play."

As interest in the pets grew among consumers, health care professionals across senior living communities, memory care communities, hospitals, and health plans became intrigued by the potential impact that the Joy for All Companion Pets could have on these vulnerable older populations.

Specifically, there was interest in measuring how the pets could address two of the most prominent challenges associated with aging:

1. Supporting individuals and caregivers of those with Alzheimer's disease and related dementias (ADRD)
2. Aiding individuals who are suffering from social isolation and loneliness

From this, more than 10 research projects have been conducted on the effectiveness of Joy for All Companion Pets in improving the overall quality of life and care for older adults. Of particular note is that each of these studies were fully initiated and conducted by the care organizations themselves, as their beliefs in the potential of these pets were so compelling.

The following white paper is a summary of these studies and the thematic results coalesced from them. Findings include:

- reduced feelings of depression, isolation and loneliness
- reduced use of medication; increased cognitive activity
- increased feelings of purpose
- reduced burden of care for care partners.

Findings are supported in anecdotal feedback and experiences throughout.

The link between loneliness and ADRD.

While loneliness and dementia are not always interconnected, studies increasingly point to a bi-directional link between loneliness and dementia among older adults. Research published in JAMA has shown this link, as well as another longitudinal study published in JAMA Psychiatry. The latter was based on interviews with 823 individuals. Loneliness was shown to increase the risk of late-life dementia, associated with a lower level of cognition at baseline and more rapid cognitive decline during follow-up.

Additionally, in a 2018 study published in The Journals of Gerontology,¹ when 12,030 individuals were analyzed over a 10-year-period by researchers at Florida State University, they found that loneliness was associated with a 40% increased risk of developing dementia – with the link independent of gender, education, race or ethnicity. Researchers have also determined² that those with ADRD are at risk of becoming isolated and feeling lonely and also have poorer health status. Those who are 65+ have four associated comorbidities³ compared to two for those without ADRD.

Alzheimer's disease and related dementias (ADRD)

Globally today there are an estimated 50 million people with dementia, according to the World Health Organization,⁴ with 10,000 new cases identified every day. Alzheimer's disease may comprise 60-70% of those cases. In the United States, an estimated 5.8 million Americans have Alzheimer's dementia,⁵ with older adults comprising a significant percentage (see Figure 1). Families generally cannot afford the average \$4300 monthly cost of facility based dementia care⁶ and so they struggle on their own as long as feasible. That can include, but not be limited to helping with activities of daily living (ADLs) such as bathing, dressing, toileting, and feeding, plus Instrumental ADLs or IADLs (shopping, housecleaning, transportation, financial management).

In 2018, an estimated 16 million family members provided unpaid care.⁷ The lifetime cost of care for one individual is estimated to be over \$340K, with 70% of the cost born by families. AARP research in 2019 valued that care provided by family and unpaid caregivers at an annual national cost of \$470 billion.⁸

Caring for an individual with ADRD presents behavior issues that include agitation, anxiety, attention deficit which are challenging for caregivers, whether in the community or in a facility.

Age of People with Alzheimer's Dementia

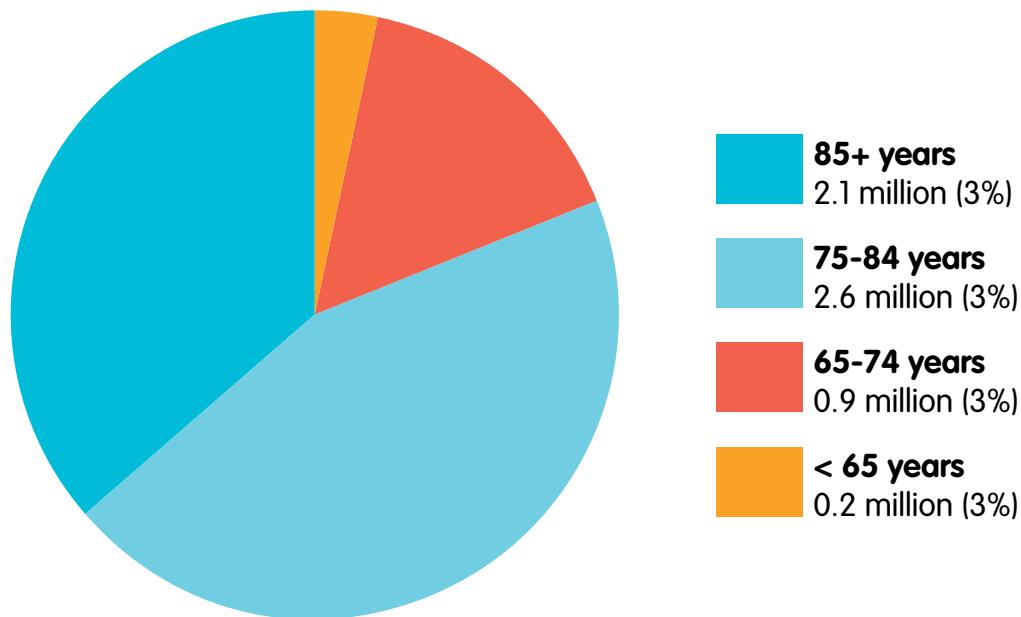


Figure 1. Age of People with Alzheimer's Dementia
Source: Science Direct 2019⁹

How have organizations used Joy for All Companion Pets to address these cognitive issues?

Research projects with Joy for All Companion Pets have shown positive results in mitigating behavior issues and potentially improving cognitive abilities in older adults. In particular, the researchers conducted experiments with the pets – and found changes in behavior and characteristics as a result of their interaction with the pets, which they perceived as real. Common findings across the studies showed positive changes. These included reduced anxiety and agitation, and improved overall well-being, resulting in socialization with others, decreased episodes of delirium, decreased need for psychotropic medications, and reduction in caregiver burden.

Reduced anxiety and agitation and/or use of medication

Despite frequently cited concerns about overuse of medication¹⁰ to control dementia-related anxiety and agitation, its use has persisted¹¹ and has resulted in significant avoidable healthcare costs.¹² Among organizations trying alternatives to medication, these approaches included the use of a Joy for All Companion Pet. In one study in a long-term care facility, James Madison University staff found a quantifiable reduction in agitation scores of residents who had one of the pets. In another study in a hospice setting, the caregiver decreased the frequency of prescribed medication for anxiety and would instead redirect the patient to the pup for calming throughout the day.

“The person was withdrawn, rarely interactive, and frequently mumbled incoherently. With the introduction of the pup, the patient would smile, laugh, talk to and pick up the pet. Her son observed that as a result, she was more responsive to him.”

Improved mood/well-being and decreased depression

The Alzheimer’s Association has documented the symptoms of depression among those with ADRD. These include: social isolation or withdrawal, disruption in sleep, appetite, agitation, irritability

or slowed behavior. The Joy for All Companion Pet research projects indicated that the pets could be useful in reducing or limiting these symptoms among participants. For example, in the James Madison University study, one staffer commented:

“I think the reason we have had such a decrease in behaviors and problems with Resident 2 is because of the cat. She used to be very agitated when she was in a skilled nursing facility, and I think that this cat has helped her transition to long-term care.”

Improved cognition

For those with dementia, the loss of understanding of speech and communication (cognition) can result in fear and anxiety. One study with Florida Atlantic University set out to evaluate the use of the pets in improving cognition and understanding among care recipients with dementia living at home, particularly interested in whether they were an alternative to the use of drugs. Their feedback about the results of a small study showed that the pets were a safe alternative for increasing favorable behavior and psychological symptoms in persons with dementia. They also saw improvement in positive mood, MMSE (test for quantifying cognitive abilities) scores, and decrease in negative behaviors, particularly demonstrating improvements in MMSE scores for 67% of the participants.

“These included improvement in patients’ memory, positive behaviors, and reduction in the risk of depression. Family caregivers also reported varied positive benefits at home with the pets after completion of the project, such as their loved one with dementia remembering that they had a pet and wanting to sleep with the pet.”

Reduced delirium in hospitalized patients

Sometimes mentally competent hospitalized older adults become suddenly confused – a sign of delirium – leading to anxious behaviors and the need for intervention by staff. Several studies noted the potential of reducing symptoms that arise from delirium encountered among patients. At the University of Albany, doctors and nurses noted behavioral improvements like calming and reduction in agitation, in patients who otherwise were suffering from hospital-induced delirium. In their study, they noted that delirium was exhibited by “reduced ability to focus, sleep disturbances, psycho-motor agitation, and emotional disturbances.”

“Our pilot study found that robotic pets could be a feasible intervention to mitigate the behavioral disturbances in selected patients with ICU delirium.”

Improved quality of care

With the worsening professional caregiver shortages¹³ in long-term care settings, staff are searching for ways to provide stimulation and positive experiences that enable care workers to provide focus where it is most needed. AFEDAZ (The Association of Relatives of Alzheimer’s Patients), an Alzheimer’s resource in Spain, offered a staff testimonial following introduction of the pets, noting:

“We’ve discovered a suitable activity that stimulates users so they are able to keep attention and occupation during a long time. In this way, the time of the occupational therapy staff can be distributed to the rest of the group’s users. Emotionally the robot has been able to awaken in them “hidden” emotions such as comfort, joy, affection, empathy, socialization, among others ...”

Reduced the burden of care

The ‘burden of care’ is a term often used about caregivers – has been defined as the “strain or load borne by a person who cares for a chronically ill, disabled, or elderly family member.”¹⁴ In the James Madison University study, staff noted the burden could be reduced without use of medications, noting that:

“Robotic companion cats also reduce the burden placed on caregivers by providing a non-pharmacological intervention for agitation and loneliness.”

As noted, the researchers finding benefits from the Joy for All Companion Pets led their own way to find out what could work with those who suffered from Alzheimer’s Disease and related dementias (ADRD). The projects included efforts to improve quality of care by occupational therapists to keep attention, reduce agitation and dependency on medication, improve cognition and speech, reduce burden on caregivers, and mitigate problematic dementia behaviors and the symptoms of delirium. Their projects were self-initiated and compelling, with results that were both positive and well-documented about how the pets could and did provide utility and benefit.

How have organizations used Joy for All Companion Pets to address loneliness and social isolation?

Loneliness and Social Isolation

Loneliness and social isolation among older adults is now seen as correlating with poorer health outcomes, confirmed in a 2015 Holt-Lunstad meta analysis study.¹⁵ The researchers found “a 29% increase in mortality over time from social isolation and a 26% increase in mortality from loneliness, as well as a 32% increase in mortality simply from living alone.” According to National Institute on Aging (NIA), researchers note that “loneliness was the subjective experience of social isolation (how a person feels), not the isolation itself and most importantly, that it was a modifiable risk factor.”¹⁶ Furthermore, according to the NIA, other studies have linked social isolation and loneliness to “higher risks for a variety of physical and mental conditions: high blood pressure, heart disease, obesity, a weakened immune system, anxiety, depression, cognitive decline, Alzheimer’s disease, and even death.”¹⁷

How significant is loneliness and social isolation?

Looking further into this topic, GreatCall published a white paper in 2019 that outlined the scale of loneliness and social isolation worldwide, with some of the social and technology tactics, including Joy for All Companion Pets, that could help mitigate the effects.¹⁸ And AARP has published research that compares the Medicare costs associated with ‘disease’ categories, noting that “a lack of social contacts among older adults is associated with an estimated \$6.7 billion in additional federal (Medicare) spending annually (see Figure 3).”¹⁹

Pet ownership is an important factor in addressing loneliness and lowering health risk...

68% of US households own a pet – and consider the pet an important part of their family – and research has been published about the significance of pets in addressing social isolation and loneliness.²⁰ Studies have shown that dog ownership is associated with

24% lower risk of death over the long term, ‘possibly driven by a reduction in cardiovascular mortality.’²¹ Further, dog ownership has been “associated with lower blood pressure levels and diminished sympathetic responses to stress.”

...But for some individuals, owning an actual pet is no longer possible.

However, the reality is that only 55% of adults age 50-80 own a pet, despite the social and health benefits.²² And in senior living settings, only around half actually permit a resident to own their own actual pet.²³ Furthermore, even if allowed, the feeding, care, and maintenance associated with owning a pet is not physically possible for many older adults who may be too frail, wheelchair-bound, or otherwise unable to provide the right care. And other research shows that pet ownership decreases with advancing age.²⁴ In those cases, a Joy for All animatronic pet has been shown to provide benefit for those who cannot care for an animal but could take care of a Joy for All pet.

Additional Monthly Cost to Medicare

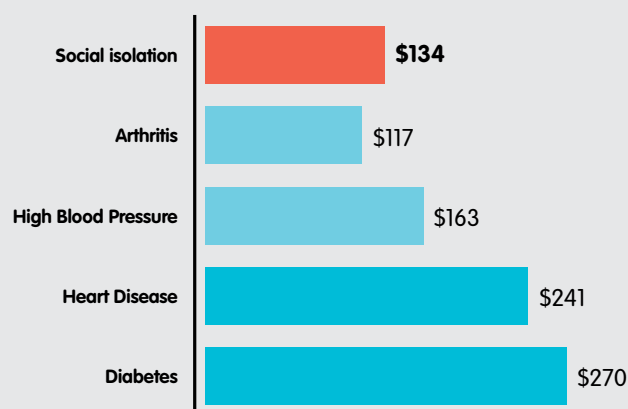


Figure 3. Additional Monthly Cost to Medicare for a Socially Isolated Enrollee and for an Enrollee with Selected Chronic Conditions. Source: [AARP 2017](#)

The AARP/UnitedHealthcare study Reducing loneliness

Clearly with the problem of social isolation so significant among older adults – both its psychological and health impact – researchers saw an opportunity for use of Joy for All Companion Pets to help. In one of the larger research efforts, 264 participants aged 65+ in the AARP/UnitedHealthcare study, published in 2018, were identified as lonely from a health risk assessment, and were further screened for participation in the study. Those who consented were given the choice of receiving a robotic cat or dog. They were then surveyed by mail three times, before, one month after and two months after receipt of the pet – including IVR phone calls reminding them to interact with the pet. The purpose of the study was to determine if ownership of the pets could decrease loneliness, and secondarily improve quality of life.

The study validated its primary hypothesis, in that the pets were able to reduce loneliness in an older population that was known to be moderately to severely lonely. The data also statistically demonstrated improvement in mental wellbeing, purpose, resilience, optimism, and suggested that the initial decrease in loneliness would likely remain stable over time, and that owning and caring for the pets might provide long-term psychological benefits for mental well-being and purpose in life.

The AFEDAZ study from Spain Decreasing loneliness

The subjects chosen for this small study had dementia and/or Parkinson's disease. The participants in the study perceived the cat as being real and treated it accordingly. Even an immobilized person who suffers from Parkinson's made 'a greater effort to reach the cat and touch it.' From the study:

"The robotic cat has given a sense of purpose to participants who have assumed the role of providing care to the cat, "my cat, I will take care of you," the realization of having a pet has aroused the feeling of being accompanied which has resulted in a decrease in the feeling of loneliness."

The New York State Office for the Aging (NYSOFA) Pilot Program

During 2018, the New York State Office for the Aging began to show success with seniors and Joy for All pets.²⁵ The agency wrapped up the pilot during 2019 in which they distributed 30 cats and 30 pups.²⁶ The results were a success – 70% of the pilot participants showed a decrease or a significant decrease in loneliness after one year. As a result, the NYSOFA has scaled distribution of pets to those most at risk for social isolation and loneliness.

"Social isolation was already a serious public health problem for older individuals who have limited social connections, and the COVID-19 virus will make this problem exponentially worse," said Acting Director Greg Olsen. "Social isolation puts older adults at greater risk for a number of physiological concerns such as decline in mobility, increased risk of heart disease including heart attack, stroke, and high blood pressure, cognitive decline, increased risk of infectious illness, and increased vulnerability to chronic illness, such as type 2 diabetes."

Conclusion

Throughout each of these studies were the consistent themes of reduced feelings of isolation and loneliness and improved quality of care and life for older adults, their families, and care providers. Results were consistent for older adults both within care settings or at home; as well those with ADRD and/or feelings of isolation and loneliness. They include:

- Helping to reduce feelings of isolation and loneliness among older adults
- Staving off the decline of ADRD and mitigating associated behavioral issues of anxiety and agitation
- Providing an engaging experience that calms individuals without use of medication
- Helping to provide a sense of purpose
- Improving mental function and capability
- Addressing hospital-induced anxiety and delirium
- Freeing staff focus attention across other care needs or patients

Joy for All Companion Pets demonstrated significant qualitative results in terms of researcher and care provider observations. And, while the number of study participants were relatively small, initial quantitative

results demonstrate very strong potential of the pets in having a positive impact across many measurements.

Equally encouraging is the scalability and broader distribution potential of the pets to achieve similar outcomes. We saw this especially within the AARP/ UnitedHealthcare study, which is the largest in size and had consistently positive results. The pilot program conducted by the New York State Office for the Aging also demonstrates effective use of the pets for adults outside of care communities.

Based on this on-going success, Ageless Innovation is continuing to pursue opportunities to expand the presence of Joy for All Companion Pets among our older adult population. This is often our most vulnerable population and one which could benefit most from the physical and emotional benefits of joy, companionship, and the power of play.

Joy for All pets' proven impact, ease of use, and cost effectiveness compared to many other interventions make it an ideal opportunity for care providers and leaders to consider in their efforts to address the needs of older vulnerable populations.

About Ageless Innovation:

Ageless Innovation is a global company focused on bringing comfort, joy and meaningful connections to older adults around the world and re-imagining how we positively live and age together by unleashing the power of play. Beginning with its award-winning line of Joy for All Companion Pets, Ageless Innovation is focused on creating products that promote fun, joy and play while reducing the cost of care and creating meaningful connections for older adults, their families, and caregivers. The team at Ageless Innovation believes that play is a basic human need for everyone – no matter their age. For additional information, visit www.joyforall.com.

Name	Author	Year	# of Participants	Setting	Results
Animatronic Pets to Reduce Loneliness Among Older Adults	AARP UHC	2018	264	Home	Increasing mental well-being, purpose in life, resilience, and optimism and decreasing loneliness over a short-term period. Member satisfaction also improved, decrease in loneliness remained stable.
New Approaches for Delirium: A Case for Robotic Pets	U of Albany	2018	20	Hospital/ICU	Overall, 65% of both subjects/family and clinical staff agreed that the cat was calming. Greater than 70% of respondents did not feel that the cat interfered with clinical care. A sizeable majority of respondents agreed that the cat could have a future role in ICU patients (95% of subjects/family, 72% of staff)
Exploring the effects of interaction with a robot cat for dementia sufferers and their carers	Wrexham Glyndwr University	2019	10	Home	Among those participants who were receptive to the robotic companion cat, the benefits included: positive mood, calming effect, increased socialization, and reduction of other dementia symptoms/behaviors. The robotic companion cat also had a positive effect on the carers' wellbeing, through its ability to modify mood and its calming effect.
Robotic Pet Therapy Improves Outcomes for Hospitalized Older Adults	PACE	2019	80	Hospital	Subjects who had a robotic pet during their hospital stay experienced better outcomes: decreased delirium incidence, decreased depression, decreased loneliness, and fewer falls as compared to subjects who did not have a robotic pet.
Using Robotic Pets to Improve Interactions, Behaviors, Life Quality	Alacare	2018	7	Home (hospice)	Overall, the data collected through the Companion Pet Pilot Study shows a significant reduction in agitation, social isolation, and expressions of sadness among the study participants; some also required less medication; primary caregivers expressed benefits, as well. The quality of life was improved for both patients and their family members.
Implementation of Animatronic Companion Pets to Improve Quality of Life, Reduce Falls and Reduce Medication Use in the Community Living Center	VA Sierra Nevada	2018	7	Community Living Center	Initial results revealed an overall improvement in veteran quality of life including increased participation in activities, increased meal consumption and increased frequency of positive behaviors such as smiling, laughing and talking. Overall, therapy with the robotics pets resulted in a decrease in falls, medication use, stress and disruptive behaviors.
Effects of a Robotic Cat on Agitation and Quality of Life in Individuals with Dementia in a Long-Term Care Facility	James Madison University	2018	11	Long Term Care	The use of robotic companion cats enhances the well-being and quality of life of individuals with dementia living in a long-term care facility by providing companionship and interaction with their environment which helps to reduce anxiety and agitation. Robotic companion cats also reduce the burden placed on caregivers by providing a nonpharmacological intervention for agitation and loneliness.
Application of Roberotherapy in Alzheimer's disease and other dementias	AFEDAZ	2018	6	Centers	Participants perceive the cat as real and so they treat it. The robotic cat has given a sense of purpose to the participants who have assumed the role of providing care to the cat. "my cat, I will take care of you". The realization of having a pet has aroused the feeling of being accompanied which has resulted in a decrease in the feeling of loneliness. The robotic cat has been a social agent for all participants, who have as such used the cat to interact with staff and other residents. For all users there has been a significant increase in liveliness / activity and level of joy from levels 1-2 to levels 5.
Improving Behavioral and Psychological Symptoms and Cognitive Status of Participants with Dementia through the Use of Toy Interactive Pets	Florida Atlantic University	2018	12	Adult Day Care	A robotic companion pet was shown as a means of a safe alternative for increasing favorable behavioral and psychological symptoms, and possibly memory, in individuals who are living with dementia. Utilizing these toy cats routinely can provide improvement in positive mood/behaviors and MMSE scores, decrease in negative mood/behaviors, and distraction when needed. A robotic companion pet is recommended if a participant is noncompliant during a group activity. Staff members working with the agitated attendee in a private room with the cat was shown to be beneficial in several instances.
Longitudinal Diary Data: Six Months Real-world Implementation of Affordable Companion Robots for Older People in Supported Living	Hannah L. Bradwell, Rhona Winnington, Serge Thill and Ray B. Jones.	2020	2 sites (group use)	Assisted Living	Staff reports in our study support the potential for robotic companion pets to provide wellbeing benefits in reducing anxiety, agitation, and alleviating moods.

Written by Laurie Orlov



Endnotes

- ¹ <https://academic.oup.com/psychsocgerontology/article/doi/10.1093/geronb/gby112/5133324>
- ² <https://alzheimer.ie/wp-content/uploads/2018/11/Dementia-and-Loneliness.pdf>
- ³ <https://www.dementiastatistics.org/statistics/comorbidities/>
- ⁴ <https://www.who.int/news-room/fact-sheets/detail/dementia>
- ⁵ <https://www.sciencedirect.com/science/article/pii/S1552526019300317>
- ⁶ <https://www.alzheimers.net/5-09-16-dementia-financial-costs-take-toll-on-families>
- ⁷ <https://www.alz.org/media/Documents/alzheimers-facts-and-figures-infographic-2019.pdf>
- ⁸ <https://www.aarp.org/content/dam/aarp/ppi/2019/11/valuing-the-invaluable-2019-update-charting-a-path-forward.doi.10.26419-2Fppi.00082.001.pdf>
- ⁹ <https://www.sciencedirect.com/science/article/pii/S1552526019300317#bib51>
- ¹⁰ <https://www.hrw.org/report/2018/02/05/they-want-docile/how-nursing-homes-united-states-overmedicate-people-dementia>
- ¹¹ <https://healthjournalism.org/blog/2018/06/report-finds-antipsychotic-drug-use-still-rampant-in-some-nursing-homes/>
- ¹² <https://www.purdue.edu/hhs/nur/nurse-online/2018Spring/features/research-effort-tackles-over-medication-at-Indiana-nursing-homes.php>
- ¹³ <https://alzlive.com/news/world/a-shortage-of-caregivers/>
- ¹⁴ <https://www.sciencedirect.com/topics/medicine-and-dentistry/caregiver-burden>
- ¹⁵ <https://www.aginglifecarejournal.org/health-effects-of-social-isolation-and-loneliness/>
- ¹⁶ <https://www.nia.nih.gov/news/social-isolation-loneliness-older-people-pose-health-risks>
- ¹⁷ <https://www.nia.nih.gov/health/>
- ¹⁸ <https://www.greatcall.com/docs/default-source/newsroom-files/fighting-social-isolation-among-older-adults.pdf>
- ¹⁹ <https://www.aarp.org/content/dam/aarp/ppi/2017/10/medicare-spends-more-on-socially-isolated-older-adults.pdf>
- ²⁰ <https://habri.org/assets/uploads/Addressing-the-Social-Isolation-and-Loneliness-Epidemic-with-the-Power-of-Companion-Animals-Report.pdf>
- ²¹ <https://www.ncbi.nlm.nih.gov/pubmed/31592726>
- ²² <https://www.sciencedaily.com/releases/2019/04/190403080514.htm>
- ²³ <https://www.assistedlivingfacilities.org/resources/choosing-an-assisted-living-facility/pets/>
- ²⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6239833/>
- ²⁵ <https://www.tapinto.net/towns/greater-olean/sections/giving-back/articles/robotic-pets-comfort-elderly-cattaraugus-county-residents>
- ²⁶ <https://www.homecaremag.com/september-2019/power-play-ageless-innovation>